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10/589,015

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EXAMINER

RAO, SAVITHA M

ART UNIT

PAPER NUMBER

1614

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DELIVERY MODE

11/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,015	Applicant(s) MIZELL ET AL.	
	Examiner SAVITHA RAO	Art Unit 1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-27, 29 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-27, 29 and 31-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/18/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 22-27, 29 and 31-42 are pending. Receipt and consideration of Applicants' amended claim set and remarks/arguments mailed on June 18th 2008 is acknowledged. Claims 28 and 30 are cancelled, claims 22, 23 and 29 amended.

Applicants' arguments, filed 08/18/2008, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The rejection of claims 28-42 of the instant application under 35 U.S.C. 103(a) as being unpatentable over Shuto et.al.(EP 0504812) or Kamm et al (Journal of Economic Entomology Vol 65 issue 2 pp: 364-367) or Miyake et. al. (Journal of Pesticide Science, vol 16 (3) pp 441-448, (1991)) in view of Redak (Proc. 2003 CDFA Pierce's Disease research Symposium, pp 302-307, (2003)) **is maintained** for reasons of record which has been restated below

In the instant claims 22-25 and 28-42, applicant claims a method for controlling a leafhopper population such as glassy-winged sharpshooter with an insect growth regulator which is a juvenile hormone analog such as methoprene which affects the reproductive system of a female leafhopper while in diapause.

Shuto et.al. teaches aromatic juvenile hormone analogs of formula (I) (Page 2, line 10-20) as having excellent juvenile hormone like activity against insect pests and exhibiting various actions such as metamorphosis inhibition, embryogenesis inhibition and sterilization and are thus efficacious as growth regulators, chemosterilants, ovicides or reproduction inhibitory agents on various insect pests (page 2, lines 30-36).

Shuto cites leafhoppers such as green rice leafhopper as one of the pests against which the aromatic compound (I) exhibit controlling effects (page 29, lines 11-20) (reads on instant claims 22-23,33-34, 39 and 42). Shuto also teaches that the aromatic compounds (I) may be used alone as insecticides or in mixtures with other insecticides and/or acaricides to enhance or expand their insecticidal and pesticidal use and lists several examples of other insecticides that could be used (page 30, lines 32-page 31, line 15) (reads on instant claim # 38). Additionally, Shuto teaches the practical

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use of the compound (I) as insecticides wherein they can be mixed with appropriate additives to formulate compositions which could be oil sprays, emulsifiable concentrates, wettable powders, flowable concentrates, granules, dusts and aerosols (page 31, lines 16-23 and formulation examples on pages 39-40) (reads on claims 35-36). In test examples on page 42-43, Shuto teaches the inhibitory activity of the compound (I) against green rice leafhoppers wherein the female adults were reproductively active (lines 5-8) (reads on claim 30)

Kamm teaches the effect of synthetic juvenilizing hormone, methyl-10-11-epoxy-7-ethyl-3, 11-dimethyl-2, 6-tridecadienoate on *Draeculacephala crassicornis* (Leafhopper specie) was determined by applying the hormone topically to females in diapause (page 364, Abstract right column). Kamm teaches that synthetic hormones initiated vitellogneiss when applied topically to females of *D.crassicornis* in diapause (page 367, left column, first paragraph).

Miyake et. al. teaches the activity of juvenile hormone analogue (NC-170) on four species of leafhoppers. Miyake teaches that NC-170 has excellent morphogenetic activity in all of the four species of leafhoppers (page 447, right column, 2nd paragraph). Miyake also teaches that leafhoppers generally deposit eggs in rows beneath the epidermis of rice stems, hence direct ovicidal effect of chemicals are frequently halted. However, NC-170 (juvenile hormone analog) is taken up by adult females and transferred into the ovaries and oviposited eggs where the embryogenesis is disrupted (page 447, left column, 2nd paragraphs, lines 4-10)

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Shuto or Kamm or Miyake do not teach that the leafhopper specie is specifically glassy-winged sharpshooter and the juvenile hormone analog is any one of the following: epofenonate, fenoxycarb, hydroprene, kinoprene, methoprene, pyriproxyfen or triprene.

Both of these deficiencies are cured by Redak.

Redak teaches the effect of insect growth regulators as being one of the most effective against glassy-winged sharpshooters among many insecticides tested (reads on instant claims 23, 33, 34 and 42)(page 302, Results section, lines 2-3). Redak also teaches that the insect growth regulators tested (buprofizen, novaluron and pyriproxifen) induced nymphal mortality over the development time of the insect (page 303, Conclusions section, lines 10-11).

The state of the art at the time of invention as evidenced by the above references indicates the use of several juvenile hormone analogs as insecticides. It would have been obvious to one of ordinary skill in the art to combine the above references and use them to develop a method for controlling leaf-hopper population specifically that of glassy-winged sharpshooter, with insect growth regulators, specifically juvenile hormone analogs. The artisan would have been motivated to do so to obtain an optimal method for eradication of leaf hoppers such as glassy-winged sharpshooter which are major pests of grape plants. Considering the state of the art at the time of invention, as evidenced by the above references and because the use of juvenile hormone analogs as insecticides is art-recognized to be effective against various leafhopper species, one skilled in the art would have been motivated to combine the teachings of the references

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above to develop a method for controlling glassy-winged sharpshooter using juvenile hormone analog with a reasonable expectation of success.

Further, the references are all from the same technical field (constituted with same ingredients and share common utilities), and are pertinent to the problem which applicant concerns about. MPEP 2141.01 (a)

Response to the arguments against Rejection 1 filed on 08/18/2008 are detailed below.

The primary argument of the Applicant is that Shuto does not teach or suggest treatment at the advantageous stage of the female leafhoppers in diapause, Kamm teaches directly against the subject invention as claimed, Miyake does not teach application to females in diapause and few (if any) of the products tested in Redak would be applicable to glassy-winged sharpshooter.

The Examiner respectfully disagrees and do not find the applicant's argument persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instant case, Shuto or Kamm or Miyake teaches a method of controlling a leafhopper population with insect growth regulator, Redak teaches the effect of insect growth regulators against glassy-winged sharpshooters. Combination of Shuto, Kamm

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or Miyake with Redak clearly suggests one of ordinary skill in the art a method of controlling glassy winged sharpshooter with juvenile hormone analogs.

Amendment of claims 22 and 23 to include the following limitation "verifying the presence of females in said leafhopper population that are in diapause; and contacting diapausing females with an insect growth regulator" does not render the claims unobvious over the combined suggestion in the above rejection for the following reasons.

Verification of the presence of females that are in diapause and contacting those diapausing females specifically with the insect growth regulator is non-practical in the agricultural industry. Additionally, applicant fails to provide any enablement of how this can be done in large scale. Even if a small sampling of the pests are tested to check for diapause, this does not imply that all the females in the infested area are in diapause.

Shuto teaches application of the compounds according to his invention to the insect pests or the locus where the insect pests propagate (page 32, lines 20-21). Insects which are propagating will have a population of insects which are in diapause which would get treated with the IGR. Accordingly, one of ordinary skill in the art would be able to combine Shuto's reference with Redak to arrive at the method of controlling glassy winged sharpshooter population by applying the compound at the locus where the pests propagate.

With regards to applicant's argument against Kamm's reference, Applicants themselves disclose in the instant specification that juvenile hormone III terminated diapause in the leafhopper *Draeculaecephala crassicornis* by topical, substrate and

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vapor treatments. (Instant disclosure, page 5, lines 10-15). Clearly, applicant has used Kamm's reference as a suggestion to extend the use of insect growth regulators to treat glassy winged sharpshooters. Accordingly, applicant's argument that Kamm teaches against the instant invention is moot. Additionally, one of ordinary skill in the art would be motivated combine the teachings of Kamm with Redak to develop a method of controlling glassy-winged sharp shooter which is specie of the same genus taught by Kamm with insect growth regulators.

With regards to applicant's argument against Miyake, Miyake teaches that leafhoppers generally deposit eggs in row beneath the epidermis of rice stems and that the insect growth regulator NC-170 is taken up by adult females and transferred into the ovaries and oviposited eggs (page 447, right col., 2nd paragraph). Accordingly Miyake is suggesting controlling leafhoppers by applying the instantly claimed insect growth regulator to adult female leaf hopper population, although not specifically mentioned by Miyake, the adult female leaf hopper population will inherently have females which are in diapause.

Finally with regards to applicant's argument against Redak, although Redak teaches that few of the compounds tested would be applicable for glassy-winged sharpshooter control, he concludes that except for rotenone and pyrethrins, conventional pyrethroids were more effective in glassy winged sharp shooter control (conclusion on page 303). Redak However, provides ample suggestion to one of ordinary skill in the art to develop a method of using other related compounds for glassy winged sharpshooter control.

Examiner would like to draw Applicant's attention to the following:

“[w]hen a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious”. KSR v. Teleflex, 127 S.Ct. 1727, 1740 (2007)(quoting Sakraida v. A.G. Pro, 425 U.S. 273, 282 (1976). “[W]hen the question is whether a patent claiming the combination of elements of prior art is obvious”, the relevant question is “whether the improvement is more than the predictable use of prior art elements according to their established functions.” (Id.). Addressing the issue of obviousness, the Supreme Court noted that the analysis under 35 USC 103 “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” KSR v. Teleflex, 127 S.Ct. 1727, 1741 (2007). The Court emphasized that “[a] person of ordinary skill is... a person of ordinary creativity, not an automaton.” Id. at 1742.

Consistent with this reasoning, it would have obvious to have select various disclosed elements from within a prior art disclosure, to arrive at the method for controlling leaf hoppers/glassy winged sharp shooters with insect growth regulators “yielding no more than one would expect from such an arrangement”.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

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references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, absence of any evidence to contrary, combination of the above references provide ample suggestions of the treatment of leafhopper population with insect growth regulators and the combined teachings of the references used makes it prima facie obvious for one of ordinary skill in the art to develop a method for the controlling leaf hopper population, the prior art teachings imbues one of ordinary skill in the art a reasonable expectation of success that such a method would be successful in controlling the leafhopper population.

Rejection 2

The rejection of claims 26-27 under 35 U.S.C. 103(a) as being unpatentable over Miyake et al (Journal of Pesticide Science, vol 16 (3) pp 441-448, (1991)) in view of Ayoade et. al. (Journal of Insect Physiology vol 45, pp: 93-100 (1999)) is maintained.

Instant claims 26-27 are drawn to the method for controlling leafhoppers, wherein the juvenile hormone analog is selected from a group consisting of methoprene, knioprene and hydroprene most preferably that of methoprene.

The teachings of Miyake are detailed above in the previous rejection. Miyake does not teach the specific effect of methoprene on leafhoppers. This deficiency is cured by Ayoade et.al.

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Ayoade et. al teaches the effects of methoprene on metamorphosis, genetically mediated wing-dimorphism and ovarian growth, in *Nilaparvata lugens* a brown planthopper (page 94, right column, 2nd paragraph). Ayoade also teaches that methoprene was effective on ovarian growth in the presumptive macropters resulting in ovarian growth surpassing those of the controls (page 96, right column, 1st paragraph, lines 6-10).

Brown planthoppers taught in Ayoade et. al falls under the same insect suborder (Auchenorrhynch) and order (Hemiptera) as the leafhoppers (David R., Hemiptera. True bugs, cicadas, leafhoppers, aphids, etc. Version 01 January 1995- Reference provided to demonstrate the fact). One of ordinary skilled in the art would have been motivated to combine the teachings of the two references to use methoprene against leafhoppers. with a reasonable expectation of success, since methoprene has been shown to have an effect on planthoppers (Ayoade et al) which is in the same order and suborder as leafhopper and juvenile hormone analogs are taught to affect leafhoppers (Miyake et. al). Further, the references are both from the same technical field (constituted with same ingredients and share common utilities), and are pertinent to the problem which applicant concerns about. MPEP 2141.01 (a)

Experimental data provided in the instant disclosure by the applicant is acknowledged. However, juvenile hormone analogs and its insecticidal properties are known in the art as detailed in the above rejections. Therefore, the experimental outcome disclosed is expected and does not demonstrate any surprising or unexpected results. Therefore, the data cannot be used to overcome the instant rejection

Response to the arguments against Rejection 2 filed on 08/18/2008 are detailed below.

Response to rejection of Miyake is addressed above.

Ayode is brought in to the rejection for its teachings of use of Methoprene in the regulation of planthopper which is in the same insect suborder as the leafhoppers. Miyake teaches the effect of a Juvenile hormone analogs against leafhoppers. In light of the response to rejection 1, methoprene taught by Ayode combined with Miyake's reference provides ample suggestion is provided to develop a method of controlling leaf hoppers by application of methoprene to the leaf hopper population.

Conclusion

Claims 22-27, 29 and 31-42 are rejected. No claims are allowed

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAVITHA RAO whose telephone number is (571)270-5315. The examiner can normally be reached on Mon-Fri 7.00 am to 4.00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on 571-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SAVITHA RAO/

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/Ardin Marschel/

Supervisory Patent Examiner, Art Unit 1614